THE UNIVERSITY OF TEXAS AT AUSTIN   Date:__9/13/16__

RECOMMENDATION FOR CHANGE IN ACADEMIC RANK/STATUS

Name:___Janapa Reddi, Vijay___ EID:__vj239__ Present Rank:__Assistant Professor__

Years of Academic Service *(Include AY 2016-17 in each count)*:

At UT Austin since:_9/1/2011_ (month/day/year) Total Years at UT Austin:_6_

In Present Rank since:_9/1/2011_(month/day/year) Total Years in Present Rank:_6_

Tenure-track only:
Number of Years in Probationary Status:_5_

Additional information:__Probationary Extension 2015-16__

Primary Department:_Electrical and Computer Engineering_

College/School:_Engineering, Cockrell School of_

Joint Department:_N/A_

College/School: N/A_

Other Department(s):_N/A_

Recommendation actions[1]:

By Budget Council/Executive Committee:__Promote_____

Vote[2] for promotion_31_; Against_1_; Abstain_2_; Absent_0_; Ineligible to vote_1_

By Department Chair:__Promote_____

By College/School Advisory Committee:__Promote_____

Vote[2] for promotion_7_; Against_0_; Abstain_0_; Absent_0_; Ineligible to vote_0_

By Dean:__Promote_____

Administrative Action:__Promote to Associate Professor_____

Date Action Effective: September 1, 2017_____
(To be submitted to the Board of Regents as part of the annual budget.)
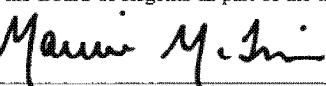
By:_____ Date:__December 15, 2016__
                    For the President

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[1]See "Chart of Recommended Actions" for eligible recommended actions applicable to specific conditions and administrative levels.
[2]Record all votes for and against promotion, abstentions by eligible voting members, and the number of absent eligible voting members. The number of committee members ineligible to vote should also be recorded. Enter zero where it would otherwise be blank.

EVPP/4.15

Dean's Assessment
Vijay Janapa Reddi
Department of Electrical and Computer Engineering
Cockrell School of Engineering

Dr. Vijay Janapa Reddi received his BS in Computer Engineering from Santa Clara University in 2003, his MS in Electrical and Computer Engineering from the University of Colorado at Boulder in 2006, and his PhD in Computer Science from Harvard University in 2010. Dr. Janapa Reddi worked for one year as a senior design engineer at Advanced Micro Devices, and he joined the Department of Electrical and Computer Engineering (ECE) at the University of Texas at Austin (UT) in September 2011. If successfully promoted to associate professor in September 2017, he will have accumulated five years of probationary service.

This is not an up-or-out case because the 2015-16 academic year did not count toward Dr. Janapa Reddi's probationary service. The department decided to put the case forward one year prior to the mandatory review following a budget council vote in early spring.

Nine external letters were submitted as part of the promotion dossier, of which, five writers were nominated by Dr. Janapa Reddi, and four were selected by the budget council. Seven letter writers are faculty members at universities in the US: Cornell, Princeton, Georgia Tech, Penn State, Stanford, Michigan, and Illinois. One letter writer is a faculty member in Switzerland (Swiss Federal Institute of Technology in Zurich), and one heads the Chrome Cloud Team for Google. Both are former faculty members in the US.

Teaching
Dr. Janapa Reddi's teaching has primarily been in the area of computer engineering with a focus on architecture and embedded systems. During his time in rank, he has taught a total of 223 students in three different courses: EE 319K, *Introduction to Embedded Systems*, a required undergraduate course (taught two times); EE 382V, *Dynamic Compilation*, a graduate course (taught three times); and EE 382V, *Code Generation and Optimization*, a graduate course (taught two times).

Dr. Janapa Reddi's overall average undergraduate instructor rating of 4.35 is higher than the corresponding values for assistant professors in ECE (4.21) and assistant professors in the Cockrell School (4.17). At the graduate level, Dr. Janapa Reddi's overall instructor rating is 4.32, which is slightly less than the average for assistant professors in ECE (4.43) and near the average for assistant professors in the Cockrell School (4.34).

Senior faculty conducted peer evaluations in Dr. Janapa Reddi's courses four times – twice at the undergraduate level and twice at the graduate level. The feedback was positive, but he received multiple suggestions to slow the pace of his presentation and engage the students more during his lectures.

Research
Dr. Janapa Reddi's research encompasses both computer science and computer engineering disciplines. At UT, his research has focused on combined software/hardware engineering solutions for energy-efficient mobile web browsing and development of approaches to monitor and mitigate the effects of voltage noise in various graphical processing unit (GPU) and central processing unit (CPU) architectures. The rapidly increasing use of mobile devices and web-related applications has attracted substantial interest within both academia and industry in Dr. Janapa Reddi's work.

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Because the projected use of mobile devices in both the developed and developing world over the coming years is expected to increase substantially, the impact of Dr. Janapa Reddi's work in this area is expected to grow and draw greater attention. Highlights of Dr. Janapa Reddi's research include:

- 20 peer-reviewed conference proceedings (34 total) and two archived refereed journal publications (8 total) in rank. One of his students is the lead author for 12 of the conference proceedings and both journal papers.
- Six of his peer-reviewed conference papers in rank are published in the highly competitive conference proceedings High Performance Computer Architecture (HPCA) or International Symposium on Computer Architecture (ISCA)
- An h-index of 19 (Google Scholar), with 4,220 career citations. One paper describing the Pin tool, which he developed as a graduate student at Colorado, has been cited more than 2,600 times.

While in rank, Dr. Janapa Reddi has secured a total of $2.4 million in external research funding, of which approximately $1.8 million is his share. Dr. Janapa Reddi is the PI on four grants from the National Science Foundation (NSF) totaling nearly $1.4 million, of which his share is approximately $1.0 million. He has also secured over $1.0 million in research funding from industry (Google, Intel, AMD, Samsung, and the Semiconductor Research Corporation), of which his share exceeds $0.8 million.

All nine letters enthusiastically support the promotion of Dr. Janapa Reddi. Many of the referees cite not only his multiple outstanding research achievements, in both computer hardware and software, but also note his unusually high level of creativity and productivity. The referees note that Dr. Janapa Reddi's contributions are not only broadly impacting thinking in computer science and engineering, but are also being incorporated by multiple companies.

David I. August[1] (Princeton) comments, "Dr. Janapa Reddi has already significantly influenced the thinking of and methods used by others in my field." August states "Dr. Janapa Reddi's work has received more academic recognition than the majority of researchers in our field have received in total." August notes the broad nature of Dr. Janapa Reddi's impact in both computer science and engineering and cites his work in tool development (Pin and GPUWattch) and his pioneering work in handling hardware voltage emergencies; he explains "Dr. Janapa Reddi has pioneered the effort ... handling voltage emergencies using a software-assisted, hardware-guaranteed approach." In comparing Dr. Janapa Reddi to peer-level assistant professors across the nation, August writes "... he ranks in the top two in terms of research creativity, productivity, and impact." August concludes his letter by writing, "I am sure that he would be granted tenure at Princeton University ... this tenure case is a "no brainer."

Scott A. Mahlke[2] (Michigan) writes that Dr. Janapa Reddi has had a "... profound impact creating tools that are seamlessly used by students, faculty, and engineers in the computer systems community." Mahlke notes that one "version of [his] technology is being integrated into Samsung's Tizen OS." Mahlke says that Dr. Janapa Reddi is a "trend setter rather than a follower." Mahlke concludes with, "He is clearly over the bar for promotion and tenure, and I strongly urge you to do your best to keep him at Texas."

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[1] Professor of Computer Science
[2] Professor of Electrical Engineering and Computer Science

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Chita R. Das[3] (Penn State) remarks "Vijay is internationally known for his research accomplishments in the broad area of computer architecture." Das notes that Janapa Reddi is a "pioneer in ... designing energy-efficient mobile architectures" and that "[his] wimpy core concept has been adopted in several commercial datacenter designs." Das writes that Janapa Reddi's "... research record is simply outstanding" and that he is "one of the best researchers among his peers." Das believes that Janapa Reddi would have "no problem in getting promotion and tenure at Penn State and for that matter in any major school."

David H. Albonesi[4] (Cornell) writes that "Professor Janapa Reddi is a rising star in the computer architecture community" and that he "... has an unusually broad area of impact." Regarding his contributions to the peer-reviewed literature, he notes Janapa Reddi has "... published two papers in ISCA, five in MICRO, and three in HPCA ... more prestigious and competitive than journals ... Overall, this is an outstanding record of achievement." Albonesi notes "The only possible perceived weakness in Professor Janapa Reddi's case might be the lack of an NSF CAREER Award, but I do not consider this a necessary condition for tenure, and the TCCA Young Computer Architect Award more than makes up for it." Albonesi concludes by stating that Janapa Reddi "... would receive tenure here at Cornell."

Advising and Student Mentoring
Dr. Janapa Reddi is currently supervising six PhD students, two of whom have successfully defended and will submit their dissertations to the Graduate School before the deadline for graduation in December. He has also graduated two MS students. Dr. Janapa Reddi has mentored three undergraduate students who worked in his laboratory. He has also hosted fireside chats with Eta Kappa Nu (HKN), the electrical and computer engineering honor society.

University Service
Dr. Janapa Reddi has served on two faculty recruiting committees, and he serves as a bridge linking UT students with industry (e.g., Intel) for internships. Dr. Janapa Reddi has conducted the Hands-on Computer Science (HaCS) program for Austin Independent School District (via UT Outreach).

Professional Service
Dr. Janapa Reddi is serving as the general chair for the 2017 International Symposium on Code Generation and Optimization. He served as the finance chair for the same conference in 2015. While in rank, Dr. Janapa Reddi has participated in nine program committees at various meetings, including the prestigious IEEE High Performance Computer Architecture Symposium and the ACM/IEEE International Symposium on Computer Architecture. In 2014, he served as a program chair for International Symposium on Code Generation and Optimization. Dr. Janapa Reddi has served as a guest editor for two special issues of *IEEE Micro*.

Other Evidence of Merit or Recognition
While in rank, Dr. Janapa Reddi has received multiple awards that recognize his contributions in computer science and engineering. In 2016, he received the Young Computer Architect Award from the Technical Committee on Computer Architecture within the IEEE Computer Society. This award recognizes one individual a year "who has made an outstanding, innovative research contribution or contributions to Computer Architecture." Also in 2016, he gave one of four Gilbreth Lectures during the National Academy of Engineering National Meeting in Irvine, CA. In 2014, Janapa Reddi was invited to participate in the NAE sponsored Indo-American Frontiers of Engineering in Mysore,

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[3] Professor of Computer Science and Engineering
[4] Professor of Electrical and Computer Engineering

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India. In 2013, Janapa Reddi received an Intel Early Career Award. The award recognizes assistant professors who show great promise as future academic leaders in disruptive computing technologies. He and his students have also received several best paper awards at conferences.

Overall Assessment

Dr. Janapa Reddi has established himself as one of the leading young academics working at the intersection of computer science and computer engineering. His record of teaching is solid. He has established a sustainable research program with funding from the National Science Foundation and various sources in industry. His work in energy efficient web-based mobile applications is widely recognized in both industry and academia. He has presented and published his research at the leading conferences and symposia in his field, at major companies in the industry, and at a number of peer academic institutions. He has received numerous honors and recognition for the work he has completed while at UT. Dr. Janapa Reddi has developed a national standing and is widely recognized as a young emerging leader in computer science and engineering.

Overall, I believe that Dr. Janapa Reddi's performance meets or exceeds expectations for promotion to associate professor with tenure in all categories, and I support this case without reservation.

Sharon L. Wood, Dean
17 October 2016

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Vijay Janapa Reddi
Department of ECE
Course Rating Averages

What source was used to complete this chart?   My CIS

Course Number: EE319K (Introduction to Embedded Systems)

Semester	Class Size	Number of Responses	Instructor Rating	Course Rating
Fall 2016	68	35	4.3	4.0
Spring 2014	72	37	4.4	4.2
Mean	**70**	**36**	**4.4**	**4.1**

Course Number: EE382V (Code Generation and Optimization)

Semester	Class Size	Number of Responses	Instructor Rating	Course Rating
Fall 2013	29	26	4.4	4.0
Fall 2012	16	13	4.5	4.2
Mean	**23**	**20**	**4.5**	**4.1**

Course Number: EE382V (Dynamic Compilation)

Semester	Class Size	Number of Responses	Instructor Rating	Course Rating
Fall 2014	15	12	4.3	4.1
Spring 2013	8	8	4.4	4.1
Spring 2012	21	19	4.0	3.4
Mean	**15**	**13**	**4.2**	**3.9**

Vijay Janapa Reddi

Table 1. Research Summary

Metric	Value
Peer-reviewed journal publications (in rank **and total**)	4 / 9
Peer-reviewed conference proceedings (in rank **and total**)	19 / 33
Number of **journal** papers **in rank** with UT students **as co-authors**	2
Total citations of all publications (career) **from ISI Web of Knowledge**	333
h-index (career) **from ISI Web of Knowledge***	7
Total citations of all publications (career) **from Google Scholar or Publish or Perish**	4220
h-index (career) **from Google Scholar or Publish or Perish***	19
Total external research funding raised	$2,403,959
Total external research funding raised (candidate's share)	$1,810,670
Total number of external grants/contracts **awarded**	7
Number of external grants/contracts **awarded** as PI	5

Note:

*   *Provide a printout/screen shot of the first page of the report from both ISI Web of Knowledge and Google Scholar*

Table 2. External Grants and Contracts Awarded while in Rank

Grants and Contracts

PI/Co-PI	Title	Agency	Grant Period	Total/ My Share
PI Janapa Reddi (self)	High-Performance, Energy-Efficient Mobile Web Computing	National Science Foundation	06/01/2016 - 05/31/2019	$400,000/ $400,000
PI Chris Kim (Univ. of Minnesota)/ Co-PI Janapa Reddi	Second Phase of Circuit and Architecture Co-Design for Near Threshold Voltage-Based Mobile Application Processors	Univ. of Minnesota (subcontract)	04/10/2015 - 01/10/2016	$100,000/ $43,500
PI Janapa Reddi/ Co-PI Chris Kim (Univ. of Minnesota)	Feedback-Driven Resiliency for Near-Threshold Systems: under SRC MAG (201300745-001;2013-HJ-2408 MAG)	Semiconductor Research Corporation	04/01/2013 - 03/31/2017	$128,000/ $64,000
PI Chris Kim (Univ. of Minnesota)/ Co-PI Janapa Reddi	Circuit and Architecture Co-Design for Near Threshold Voltage-Based Mobile Application Processors	Univ. of Minnesota (subcontract)	12/15/2013 - 01/15/2015	$100,000/ $43,500

PI/Co-PI†	Title	Agency	Grant Period	Grant Total
PI Janapa Reddi/ Co-PI Sek Chai (SRI)	Resilient Computing Systems Using Deep Learning Techniques	National Science Foundation	08/01/2015 - 07/31/2018	$499,959/ $265,000
PI Janapa Reddi/ Co-PI Chris Kim (Univ. of Minnesota)	Feedback-driven resiliency for Near Threshold Systems	National Science Foundation	04/01/2013 - 03/31/2016	$192,000/ $96,000
PI Janapa Reddi/ Co-PI Lizy John (UT Austin)	Cross-Layer Solutions for Sustainable and Reliable Computing Solutions	National Science Foundation	08/01/2012 - 07/31/2015	$300,000/ $214,670

Industry Gifts

PI/Co-PI	Title	Agency	Grant Period	Grant Total
PI Janapa Reddi (self)	Mobile computing	Google	2012, 2013, 2015	$139,000
PI Janapa Reddi (self)	Reliability and Mobile Computing	Intel	2012, 2013, 2015, 2016	$395,000
PI Janapa Reddi (self)	Power modeling	AMD	2012, 2013, 2014, 2015	$150,000

Total Funding: **$2,403,959**

My Total Funding: **$1,810,670**

Note:

†   For all projects, list the role of the candidate. For projects with co-investigators, also list name, role (PI or Co-PI), and department (university if not UT) for each co-investigator.

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Division of Labor – Research Projects
Vijay Janapa Reddi

The division of labor for research projects/grants while in rank is provided in the table below. Only collaborative projects are listed. The complete list of all awarded grants is present in my CV.

Grants and Contracts

PI/Co-PI	Title	Agency	Division of Labor	Total/ My Share
PI Janapa Reddi (self)	High-Performance, Energy-Efficient Mobile Web Computing	National Science Foundation	VJ: 100%	$400,000/ $400,000
PI Chris Kim (Univ. of Minnesota)/ Co-PI Janapa Reddi	Second Phase of Circuit and Architecture Co-Design for Near Threshold Voltage-Based Mobile Application Processors	Univ. of Minnesota (subcontract)	CK: 50% VJ: 50% (I was responsible for the architecture piece of the work, while Chris was responsible for the circuits part)	$100,000/ $43,500
PI Janapa Reddi/ Co-PI Chris Kim (Univ. of Minnesota)	Feedback-Driven Resiliency for Near-Threshold Systems: under SRC MAG (201300745-001;2013-HJ-2408 MAG)	Semiconductor Research Corporation	VJ: 50% CK: 50% (the project was on circuit and architecture co-design. I was responsible for the architecture half of the proposal)	$128,000/ $64,000
PI Chris Kim (Univ. of Minnesota)/ Co-PI Janapa Reddi	Circuit and Architecture Co-Design for Near Threshold Voltage-Based Mobile Application Processors	Univ. of Minnesota (subcontract)	VJ: 50% CK: 50% (the project was on	$100,000/ $43,500

			circuit and architecture co-design, specifically for mobile NTV processors. I was responsible for the architecture half of the proposal)	
PI Janapa Reddi/ Co-PI Sek Chai (SRI)	Resilient Computing Systems Using Deep Learning Techniques	National Science Foundation	VJ: 53% SC: 47% (I was responsible for the resilient architecture piece of the project, while Sek was helping my students with machine learning methods)	$499,959/ $265,000
PI Janapa Reddi/ Co-PI Chris Kim (Univ. of Minnesota)	Feedback-driven resiliency for Near Threshold Systems	National Science Foundation	VJ: 50% CK: 50% (same as previous proposals with Chris, I was responsible for the architecture piece while Chris handled the circuits part of the research)	$192,000/ $96,000

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PI Janapa Reddi/ Co-PI Lizy John (UT Austin)	Cross-Layer Solutions for Sustainable and Reliable Computing Solutions	National Science Foundation	VJ: 70% LJ: 30%	$300,000/ $214,670
			(I led the vast majority of this research. More specifically, I did the measurement based research with my students that led to publishable material and a PhD thesis.	
			Dr. John and I originally explored simulation based analysis on a novel idea with one MS student that was mostly a dead-end.	

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